ĻΨ

<400> 3

SEQUENCE LISTING

```
<110> Huang, Ning
     Hwang, Yong-Sic
      Yang, Daichang
      Schmidt, Robert J.
<120> Plant Transcription Factors and Enhanced
  Gene Expression
<130> 0665-0018.30
<140> Not Yet Assigned
<141> Filed Herewith
<150> US 60/201,182
<151> 2000-05-02
<150> US 60/266,920
<151> 2001-02-06
<160> 35
<170> FastSEQ for Windows Version 4.0
<210> 1
<211> 24
<212> DNA
<213> Artificial Sequence
<220>
<223> primer
<400> 1
                                                                         24
ctgatatgtg cccatgttcc aaac
 <210> 2
 <211> 24
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> primer
 <400> 2
                                                                         24
 ccttgctgaa tgcagatgtt tcac
 <210> 3
 <211> 27
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> primer
```

		27
	gttagtctgc agtgtaagtg tagcttc	21
	<210> 4	
	<211> 29	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> primer	•
	<400> 4	29
	atggttgtct agattttgtg ggactgaac	
	<210> 5	
	<211> 32	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> primer	
	<400> 5	32
45. 45. 45. 45. 45. 45. 45. 45. 45. 45.	acagacagct gcagagatat ggattttcta ag	
u N	<210> 6	
Ē	<211> 33	
1	<212> DNA	
	<213> Artificial Sequence	
Hand Hand	<220>	
	<223> primer	
1	<400> 6	33
	ggaactetet agagetattt gtaettgett atg	
₩ ₩	<210> 7	
₩	<211> 27	
	<212> DNA	
± 1	<213> Artificial Sequence	
	<220>	
	<223> primer	
	<400> 7	27
	tccgagctgc agtaatggat acctagt	
	<210> 8	
	<211> 27	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> primer	
	<400> 8	27
	gtagtttcta gagctattag cagttgc	_ ′

	<210> 9	
	<211> 27	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> primer	
	(223) brimer	
	<400> 9	27
	cggtgctgca gatgggttgg gaaccct	21
	<210> 10	
	<211> 28	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> primer	
	<400> 10	0.0
	atgatctaga ttgctctggg acatagat	28
	atgatetaga tegetotggg transpi	
	<210> 11	
ī	<211> 27	
ñ	<212> DNA	
Gui tan tan dan ili lini fini fini	<213> Artificial Sequence	
-1		
1	<220>	
1.d 4 ii	<223> primer	
: 121 183		
	<400> 11 aattootgoa goatoggott aggtgta	27
: := <u>1</u>	aatteetgea geateggeet aggegen	
= Fi	<210> 12	
:83 :≈4;	<211> 27	
:==== := :	<212> DNA	
	<213> Artificial Sequence	
=		
±	<220>	
	<223> primer	
	<400> 12	27
	tgatctagat tgttgttgga ttctact	
	<210> 13	
	<211> 29	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> primer	
	<400> 13	29
	ggcgcctgca gggaggagag gggagagat	
	2010) 14	
	<210> 14	
	<211> 29	

	<212> DNA <213> Artificial Sequence	
	<220>	
	<223> primer	
	<400> 14 accttgctct agattgatga tcaatcaga	29
	<210> 15	
	<211> 31	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> primer	
	<400> 15	31
	cgtcgtctct gcaggccagg gaaagacaat g	31
	<210> 16	
	<211> 29	
1	<212> DNA	
6 16 16 18 16.19 6.44 161	<213> Artificial Sequence	
y =	<220>	
	<223> primer	
,	<400> 16	29
¥	cgcttatcta gatcagtgaa ctgtcagtg	
iej	<210> 17	
1	<211> 27	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
≓ ≟	<223> primer	
	<400> 17	27
	ttctgggatc caagatgcct accgagg	
	<210> 18	
	<211> 27	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> primer	
	<400> 18	27
	ggggtcggat ccgagatggg catggac	
	<210> 19	
	<211> 28	
	<212> DNA	
	<213> Artificial Sequence	

	<220> <223> primer	
	<400> 19 agtggggatc ctaagccgag gccgcaac	28
•	<210> 20 <211> 28 <212> DNA	
	<213> Artificial Sequence	
	<220> <223> primer	
	<400> 20 gctaggggat cctggtgcat aggtagca	28
	<210> 21 <211> 19	
	<212> DNA <213> Artificial Sequence	
	<220> <223> primer	
din die den den den "F" den freit freit die	<400> 21 cggcaacagg attcaatct	19
	<210> 22 <211> 24 . <212> DNA <213> Artificial Sequence	
	<220> <223> primer	
	<400> 22 ccatccaatc caatccactc caac	24
	<210> 23 <211> 21 <212> DNA <213> Artificial Sequence	
	<220> <223> primer	
	<400> 23 aggcgattaa gttgggtaac g	21
	<210> 24 <211> 24 <212> DNA	
	<213> Artificial Sequence <220>	

<211> 879

```
<223> primer
<400> 24
                                                                         24
cctagccaaa gtcttcgagc ggtg
<210> 25
<211> 18
<212> DNA
<213> Artificial Sequence
<220>
<223> primer
<400> 25
                                                                         18
gcgatgttgt cttgcagc
<210> 26
<211> 779
<212> DNA
<213> Oryza sativa
<400> 26
                                                                         60
ttctgtagta cagacaaaac taaaagtaat gaaagaagat gtggtgttag aaaaggaaac
aatatcatga gtaatgtgtg agcattatgg gaccacgaaa taaaaagaac attttgatga
                                                                        120
                                                                       180
gtcgtgtatc ctcgatgagc ctcaaaagtt ctctcacccc ggataagaaa cccttaagca
                                                                        240
atgtqcaaaq tttqcattct ccactqacat aatqcaaaat aagatatcat cgatqacata
qcaactcatq catcatatca tgcctctctc aacctattca ttcctactca tctacataag
                                                                        300
tatcttcagc taaatgttag aacataaacc cataagtcac gtttgatgag tattaggcgt
                                                                        360
gacacatgac aaatcacaga ctcaagcaag ataaagcaaa atgatgtgta cataaaactc
                                                                        420
cagagetata tgteatattg caaaaagagg agagettata agacaaggea tgaeteacaa
                                                                        480
aaattcactt gcctttcgtg tcaaaaagag gagggcttta cattatccat gtcatattgc
                                                                       540
aaaagaaaga gagaaagaac aacacaatgc tgcgtcaatt atacatatct gtatgtccat
                                                                        600
cattattcat ccacctttcg tgtaccacac ttcatatatc ataagagtca cttcacgtct
                                                                        660
ggacattaac aaactctatc ttaacattta gatgcaagag cctttatctc actataaatg
                                                                        720
cacgatgatt tctcattgtt tctcacaaaa agcattcagt tcattagtcc tacaacaac
                                                                       779
<210> 27
<211> 672
<212> DNA
<213> Oryza sativa
·<400> 27
aattoottot acatoggott aggtgtagca acacgacttt attattatta ttattattat
                                                                         60
tattattatt ttacaaaaat ataaaataga tcagtccctc accacaagta gagcaagttg
                                                                       120
                                                                       180
gtgagttatt gtaaagttct acaaagctaa tttaaaagtt attgcattaa cttatttcat
attacaaaca agagtgtcaa tggaacaatg aaaaccatat gacatactat aattttgttt
                                                                       240
ttattattga aattatataa ttcaaagaga ataaatccac atagccgtaa agttctacat
                                                                       300
                                                                       360
gtggtgcatt accaaaatat atatagctta caaaacatga caagcttagt ttgaaaaatt
                                                                       420
gcaatcctta tcacattgac acataaagtg agtgatgagt cataatatta tttttcttgc
tacccatcat gtatatatga tagccacaaa gttactttga tgatgatatc aaagaacatt
                                                                       480
tttaggtgca cctaacagaa tatccaaata atatgactca cttagatcat aatagagcat
                                                                        540
caagtaaaac taacactcta aagcaaccga tgggaaagca tctataaata gacaagcaca
                                                                        600
atgaaaatcc tcatcatcct tcaccacaat tcaaatatta tagttgaagc atagtagtag
                                                                       660
aatccaacaa ca
                                                                        672
<210> 28
```

```
<212> DNA
<213> Oryza sativa
<400> 28
aagettgege geggaataeg gtggtggaga tgggttggga aecetggatt ecaaacaeag
                                                                        60
cccaagtcta tccaaaatgt ttagacaaga aaatacgtaa caagttggtt tacagaaata
                                                                       120
                                                                       180
gcaattagat caatcctgca ctacaagtag agtaaagtgg tgatttctct taaatctctc
gaatggtgat ttaagaattc agtgcaaacc aaatccttgc tataatcaaa tgttcggtac
                                                                       240
                                                                       300
cccatcaacg gaacaataaa aagcgcctgg ctaccataat tttgtcattc ttcttcaatt
tgtaatttaa gatgcatgag gccacacgac cttaatgttc aacgtgtcat gcattagtga
                                                                       360
                                                                       420
aataataqct cacaaaacqc aacaaatata gctagataac ggttgcaatc cttaccaaac
taacgtataa agtgagcgat tagtcatatc attatctccc gcctgctaac catcgtgtac
                                                                       480
                                                                       540
accatccqat ccaaaaatga caacttctag ggatgaacct ggacaaggtt tagggtttag
                                                                       600
qqatqaatct qqacaatgat tgttcaggtt catccctaga tgttgctttc tccttacggg
acggagggag tatatgtgat ggacacaaaa gttactttca tgatgaaagg aaaggggatt
                                                                       660
                                                                       720
tgttggggca ctaatagaac atctgtccaa atggcatgac tcacttatat cctaatagga
catccaagaa aaactaacac tctaaagcaa ccgatgagga attgaaagaa aatacgtgcc
                                                                       780
                                                                       840
accqcatcta taaatqqaca agcqcaatgg aaaccctcct catcgttcac acagttcaag
                                                                       879
cattatacag caaaatagaa agatctatgt cccagagca
<210> 29
<211> 883
<212> DNA
<213> Oryza sativa
<400> 29
ctgcagggag gagaggggag agatggtgag agaggaggaa gaagaggagg ggtgacaatg
                                                                        60
                                                                       120
atatgtgggc catgtggccc ccaccatttt ttaattcatt cttttgttga aactgacatg
                                                                       180
tgggtcccat gagaattatt atttttcgga tcgaattgcc acgtaagcgc tacgtcaatg
                                                                       240
ctacqtcaqa tqaaqaccqa qtcaaattaq ccacqtaagc gccacqtcag ccaaaaccac
                                                                       300
catccaaacc gccgagggac ctcatctgca ctggttttga tagttgaggg acccgttgta
cgtgggcttc caatcctcct caaattaaag ggccttttta aaatagataa ttgccttctt
                                                                       360
                                                                       420
tcaqtcaccc ataaaagtac aaaactacta ccaacaagca acatgcgcag ttacacacat
tttctgcaca tttccaccac gtcacaaaga gctaagagtt atccctagga caatctcatt
                                                                       480
                                                                       540
agtgtagata catccattaa tcttttatca gaggcaaacg taaagccgct ctttatgaca
                                                                       600
aaaataggtg acacaaaagt gttatctgcc acatacataa cttcagaaat tacccaacac
                                                                       660
caaqaqaaaa ataaaaaaaa atctttttgc aagctccaaa tcttggaaac ctttttcact
                                                                       720
ctttgcagca ttgtactctt gctctttttc caaccgatcc atgtcaccct caagcttcta
                                                                       780
cttgatctac acquagctca ccgtgcacac aaccatggcc acaaaaaccc tataaaaccc
                                                                       840
catccgatcg ccatcatctc atcatcagtt catcaccaac aaacaaaaga ggaaaaaaaa
                                                                       883
catatacact tctagtgatt gtctgattga tcatcaatct aga
<210> 30
<211> 877
<212> DNA
<213> Tricticum aestivum
<400> 30
ctgcaggcca gggaaagaca atggacatgc aaagaggtag gggcagggaa gaaacacttg
                                                                        60
                                                                       120
qaqatcataq aaqaacataa qaqqttaaac ataqqaqqqc ataatggaca attaaatcta
cattaattga actcatttgg gaagtaaaca aaatccatat tctggtgtaa atcaaactat
                                                                       180
ttgacgcgga tttactaaga acgtcatagc atagatagat gttgtgagtc attggataga
                                                                       240
tattgtgagt cagcatggat ttgtgttgcc tggaaatcca actaaatgac aagcaacaaa
                                                                       300
acctgaaatg ggctttagga gagatggttt atcaatttac atgttccatg caggctacct
                                                                       360
                                                                       420
tccactactc gacatggtta gaagttttga gtgccgcata tttgcggaag caatggcact
actcgacatg gttagaagtt ttgagtgccg catatttgcg gaagcaatgg ctaacagata
                                                                       480
                                                                       540
catattctgc caaaccccaa gaaggataat cactcctctt agataaaaag aacagaccaa
```

	ggctttagca gcttcttttg ttcataggct ctataaaagc	gaccgtccaa tgttggcaaa aaactaacct ccatccaacc	tgcaaacaat aaatctgttt ctgccctttt cggcgtgcac ttcacaatct cagttcactg	tgcaagcacc ccaaccgatt acaaccatgt catcatcacc	<pre>aattgctcct ttgtttcttc cctgaacctt</pre>	tacttatcca tcacgctttc cacctcgtcc	600 660 720 780 840 877
	<210> 31 <211> 1362 <212> DNA <213> Zea n	nays					
	ccagcgccag atagacgttg gagtggacct gtggtggtgg atggaagagg atggagtaca tggagggga actggaggta ccaatcaaca tcctcgagag ttcaagatgc cgctcgagat aaagccgaga gctaacgtcg atggagaggg cccatctcgg agcatcgtcg tcttgcgac gccacagaga cagacggcga attatgagct	agccagagcg ctgctgctgg ttgagaggtt tgccgaactc cggtaactat atgccatact actccagtgt gcagcatcag ataaccacgc atccttcacc ctaccgagga acaggaaagc attcttgcct acaacagggt actctctgaa cgccgacccc gctacttctc tgcaagctca tgaaccgagt tgggatccat gctgggtcca	ggaggagatc agagcagcct tcatggtgac actagaagag ttgttgctca ggcgcctgcg gaggaggaag tgtgacctca gaataatcca tcaaactgca atcagacgaa aagagtgagg cgctcacctg gctgaggcgc gctgaggcgc gctgagagcg gcgggtgata cagctccgac cgccacagcc tcaagagcct agcagcagcc aatggggca	ccggtaaccg ggggacatga gaggctctga ggcgccctaa gcggtgagta ctggaggagg gatcaacgtt gtgcagaaca ggccttggcg gacatggacg aaaaaggaat aaagaactgg attgccgctc gacatggaga gagatgagct gctccagtgc gcagacgacg gcatccatgg acgcattgcg tccgcctccg tacacatgga	gcatcgtcgt tggatcagca cgacaagcac atgctgaccg gtgccgtagt acctcgaggc ctcaaggctc agctgatgaa tgaggcttgc gagaagtaga ccaatagaga accaatagaga ccatcagtgcc catcagtgcc cgcgccgcc atgcttcggt tgggggccat gatctacacc catgtattag	cggcagtgtc gcacgccaca accgccgccg gccgccggtg aggtgaccc cttcaaaatg aaacaatcac cggcgaagat tactagctct gattctgggg atcagccaga agcacagcta gtacaacgac taaggtgaag gtcgtccatg tatccgagac cggcaacggt aactctgagc ggagctcatc gcgccgcag	60 120 180 240 300 360 420 480 540 660 720 780 840 900 960 1020 1080 1140 1200 1260 1320 1362
•	<210> 32 <211> 1314 <212> DNA <213> Zea r		ttttatttgc	aggegreger	ya		1302
	ccagcgccag atagacgttg gagtggacct gtggtggtgg atggagagg atggagtaca tggagggcgg actggaggta ccaatcaaca tcctcgagag ttcaagatgc agacgctcga	agccagagcg ctgctgctgg ttgagaggtt tgccgaactc cggtaactat atgccatact cctccagtgt gcagcatcag ataaccacgc atccttcacc ctaccgagga gatacaggaa	ggaggagatc agagcagcct tcatggtgac actagaagag ttgttgctca ggcgcctgcg gaggaggaag tgtgacctca gaataatcca tcaaactgca atcagacgaa aagagtgagg agccgctcac cctgctgagg	ccggtaaccg ggggacatga gaggctctga ggcgccctaa gcggtgagta ctggaggagg gatcaacgtt gtgcagaaca ggccttggcg gacatggacg aaaagaaagg ctgaaagaac	gcatcgtcgt tggatcagca cgacaagcac atgctgaccg gtgccgtagt acctcgaggc ctcaaggctc agctgatgaa tgaggcttgc gagaagtaga aatccaatag tggaagacca	cggcagtgtc gcacgccaca accgccgccg gccgccggtg aggtgacccc cttcaaaatg aaacaatcac cggcgaagat tactagctct gattctgggg agaatcagcc ggtagcacag	60 120 180 240 300 360 420 480 540 600 660 720 780 840

 aagatgggag atgeecatet gacageateg ggtttettge agegeeacag atceagaegg	aggactetet eggegeegae teggetaett gaetgeaage agatgaaceg egatgggate	gaagcgggtg ccccagctcc ctccgccaca tcatcaagag agtagcagca catgccgccg	gcggacatgg atagagatga gacgctccag gccgcagacg cctgcatcca gccacgcatt acctccgcct gccatacaca	gctcatcagt tgccgccgcc acgatgcttc tggtcgtcgg gcgcgggggc ccggatctac	gccgtcgtcc gcctatccga ggtcggcaac tggaactctg catggagcac accgccgccg	900 960 1020 1080 1140 1200 1260 1314
<210> 33 <211> 466 <212> DNA <213> Oryza	a sativa					
cactgcgcag cctgctacag tgcggcaagc acagctcagg agcgcaccag agctcaagca	tttgatgttt caacaggtgc accttcttgc ctggtggcgc ctacacctcc ctgttggctt	taggtcaaaa ttagcccata aatcagctgc aacaatctca agcagtttgg ttaacttgcc	tgctctcctt tattaggcaa taatgagttc gtttcaactg ctaccaggac caatctctac atctacatat cggtgtcttg	tatcaggtgc gtaaggcagc agaaacaacc attaacgttg attgaccgga ggtatctacc	agtcgcctct agtatagcat aagtcttgca tccaggccat atctggctca	60 120 180 240 300 360 420 466
<210> 34 <211> 997 <212> DNA <213> Zea n	nays					
ccaacaggcg gacacgagcc tgaggcgctc ttatagcatg tggtacccca atttgtcttg tagcaccaac catgacgatg gccgacaggt cttcacacca tgaggcaaca ctataacaca gccatcatat acaactggtg tggtgtatca ccaacaacac <210> 35 <211> 6227 <212> DNA <213> Oryza	gtgatgttgt atgccccaaa aagtgcccac tcacaaccac cgcaatgtcc ggctctcaca gctagctcta cctaccccaa ggaggcgggg atgtctctac ccgtctttcc agtctcacga ggtgcaatgt gggcctcagc ttgttgaacc aacaacaaca	catccccat taggtggcag gctgcgactc gctacttttg ccattggtgg cctcatcgtc gcaatatgag cgacaatggg gctttgactt ctagccaggg tagagatgct tgagtggtgg gcacaaatgg aggataacaa	cactgcagca tataaaggag tggggagcgt caacaacacc caaggcttgc tgggtgtcgc ctcatctgct catcaacaa cttattccct cactatggac gcagtgcct gagaggaggg caacaatgga gttgagtggc ggccatcatg caagcacaac acaataa	gaagctaggg aagccgaggc aagttttgct cgccgctatt aagaacaaac acctatgcac catatgatga aatgtgctcc aaccaacata atgctggctg attttcatg atggacaagc tcaaccacta aagagcagta	acccaaagca cgcaactacc actacaacaa ggacacatgg atgcctctag cattatcccc tggtgcctaa caacacttat gatcattgtc caggaggag gtagtagtag cattttcgct atgatgccag ataacaacaa	60 120 180 240 300 360 420 480 540 600 660 720 780 840 900 960 997
atgggaggct	atatttttat	cggattttag	agagaatgga taaataacgg gtagttgaat	ggcaattcgg	tacttaggta	60 120 180

```
240
tqttqtqttq ttqcaqttaq qqtacttqaa taqctccaqc cgtgaaaacg aggggttttc
                                                                      300
qcaqqtttta tagqattgcc aagttagact agggcaattc atgttcacgg tattgtgtag
tatatgaaaa aggagatctc ccaaacaatt tataattttg tataagggag aaatcgaact
                                                                      360
                                                                      420
tgaggtgtct aattcaccaa ccgagctact ccctccgttt catatatgta tatacatata
                                                                      480
tacgtatata tacgtatata cacatatacg tatatacata tatggtatat acatatatat
                                                                     540
atatatata atatatat atgtgtgtgt gtgtatgtgg ggtggcaatg ctaaaaagtt
ttataatatg aacggatgaa gtactatcca ctaagtccct atagttttct ggcactgtgt
                                                                      600
                                                                      660
agtatacgaa tgcacaatta tatccataaa attgatatta tatattcgtc gcgacgaaaa
                                                                     720
taaaqacata atattcqqta taccatttat ccacqatata tctaaattcc actgatatat
ctaaattcca cttgatccct tttatggata aattctggat aacaattact accagcagta
                                                                     780
                                                                     840
tatcctacta tcagcgcact gcacaccaaa ctaccctcac ccagtagtta caaacgcata
ttttgccgtt agttaattat tatccggtaa agaaggtaaa gaagattggt agtaatccaa
                                                                      900
                                                                     . 960
aattttccca accccaacct cggaacaaaa accgcgtagt atttgtcgta accaggagca
                                                                     1020
tocqaqtcat taatttacac ccaaacacaa aaaattagca gcacgcagcc gccttcccaa
                                                                    1080
tectetecte tetectete tettetecaa geggeaatte gegegaggtt tteteegate
aaaccctcqa atcccccct cgcgaatcca tcggagggta gccccgcgat ccgcgtcggc
                                                                    1140
gagagcggat tccgattccg cgatggagcg ggtgttctcc gtggaggaga tctccgaccc
                                                                    1200
attetqqqte eegeeteege egeegeagte ggeggeggeg geecageage agggeggegg
                                                                    1260
cqqcqtqqct tcqqqaqqtq qtqqtqtt aqcqqqqqqc qqcqqcqq qqaacqcqat
                                                                    1320
                                                                    1380
qaaccqqtqc ccqtcqqaqt qqtacttcca gaagtttctg gaggaggcgg tgctcgatag
                                                                    1440
ccccqtcccq aacctaqcc cgagggccga agcgggaggg atcagggggcg caggaggggt
ggtgccggtc gatgttaagc agccgcagct ctcggcggcg gcgacgacga gcgcggtggt
                                                                    1500
                                                                    1560
ggaccccqtg gagtacaacg cgatgctgaa gcagaagctg gagaaggacc tcgccgcggt
                                                                    1620
eqecatqtqq aqqqtacaqe cattetecec ceetetagta etegagaget taetgagate
ggcaatgcta gctactgttt gcatcgaatg tttataggta tttagatcgg gcatttctat
                                                                    1680
                                                                    1740
agaccaatgg cgtccatggt cttgcaatgc gctctgttga gtgtcggtgg ttggttcgac
tcatagtatg tagggttgtg cgtatgtaca aacggaagct tcatagacct cggtattgag
                                                                    1800
attgcgatat cgatgcaacc tgcgaattgg cgatgtaatc agtcatattc ttactaaact
                                                                    1860
                                                                     1920
qcqaqacaqt qqtttgtttg caattgcaat atttttgtat ggggctgctt aaactgtcat
tgccttttta gattggcaat atgtgacttt atgcaagtat ttgattgggc ggatccagga
                                                                    1980 .
                                                                     2040
acaaaaagtt ggggggattc aacataccga gtacactggc ataaacacat catctcagta
2100
tgaaaaaatt gaaggggga ctcagggggg tatccatggg tccgatgggt gcagggggga
                                                                     2160
ctgagtcccc cctgcaccca cgttgaatcc gccctggcat gcgtataagc tgtcacagcc
                                                                     2220
atttctaggt gcttgtgctt agttgggtga tgtcagctta atttgtcttt tctatgtcgt
                                                                     2280
catcgatttt ctaagaaacg aaaaatagcc tatttatgtg ctccagaatt tgatgatccc
                                                                     2340
                                                                     2400
tgqcccttca tttqctqaaa ttaqcctatt tgttgqttgc ccttcagttt tttcccagct
tatgttgttg caatgtgtgg ctatgcctcg ttttgtgccc tataatttat tatttgcaat
                                                                     2460
tcatttttgt acatgactta aaatgacact agagcaacat gcactgattg gttatcctat
                                                                     2520
aatcatttat gtagttctgt tcattttatc atgctagctc atgtcatttt catcttcagg
                                                                     2580
cctctqqcac aqttccacct qaqcqtcctq qaqctqgttc atccttqctq aatqcaqatq
                                                                     2640
                                                                     2700
tttcacacat aggegeteet aattecateg gaggtaetta tettatetgg ttacatttte
agattgttat gaaactaccc aaatatcctg cacaattgca tgggattaaa ttttagtttc
                                                                     2760
tttgaaatag aagtagagtt gtattgctgt cacgtcatca aatagttctg aagctatgaa
                                                                     2820
                                                                     2880
taaataagtt ccgcatttgt tagtgattct ttgaacatta gaattgttat gcttaagtag
atagggttat gtttgtttgg agttccctta aatcatttca ttgctgactg ccagctggca
                                                                     2940
ggagcatttg ttgttgcctt gaccatgaat gaagaccttc ctgttctgag tgctcacaag
                                                                     3000
                                                                     3060
aaaacatatt ttgattaatg caccttgaat ccttaggatc ttgcaaagat gggcacttag
ctttagaatt gagtagtact taaatagctg ttgttatcat gatttgtcct gtagtgaaat
                                                                     3120
gtcgacaaaa caggaatgct acttttgact tctgatattt catgcctggc tttacttatg
                                                                     3180
ctctgtttgg aacatgggca catatcaggc aatgctactc cagttcaaaa catgctaagt
                                                                     3240
ggcccaagtg ggggatcggg ctcacagttg gtacagaatg ttgatgtcct tgtaaagcag
                                                                     3300
                                                                     3360
cccaccaqct cttcatcaaq qqaqcaqtca qatqatqatg acatgaaggg agaagctgag
accactggaa ctgcaagacc tgctgatcaa agattacaac gaaggtgatc attcattgct
                                                                     3420
tccttgtaat atagattctg tacataatta acctacctcg tcatgcatgc atgtgtccta
                                                                     3480
ttttcacctt agccctttca gttggatttc cactttcatc cggtagcctt tcagtttcct
                                                                     3540
                                                                     3600
attgcatcgc atatatgatc ttttacctac catattagtt ctctgtgtgc catactcagt
```

```
gcttagtgtc tcgagcaaga gaggaatttg tatggctatt acacgtagca ctttgctctc
                                                                      3660
tacttgttta ttgacataag caatttggga tgaattaaat ctgagttcac atcatattcc
                                                                      3720
                                                                      3780
ttatqtcaca aqtttctgaa accgattgta tctagtatct ggttgatgca cccccatctt
ggatttgcaa atcaaagtta tactccctag agagctttac ctttcataaa gcaattaccc
                                                                      3840
                                                                      3900
caataaacca cggatttgat agctattgac tatgattacc agaattcatt tggcagctat
tttctcaatt taagtttggt attagtctca gttggctgta aaataatgtc acggtagggt
                                                                      3960
                                                                      4020
acatgtatgt gcagcataca aggtatgggt gagttatgat atggacagtg tgtacacccc
acatttgctc actaaaatca aaatattcaa acgtcacgtg atgatatggt ggattgcatt
                                                                      4080
                                                                      4140
ataccttqta ttqtttatta tqttacttqt qctagacaat aatataggct gttcttttgg
gtgattttgt atgaagatgt tgagcaagca cttctcgata taatgctagt tttgttgacc
                                                                      4200
tgttccagga agcaatccaa tcgggagtca gccaggcgct caagaagcag aaaggcagct
                                                                      4260
cacttgaatg agctggaggc acaggtgtga tagttcacat agttattttc gataagacat
                                                                      4320
aaaatcctaa attactggct actgacttca gttatggatt tacttgttac aggtatcgca
                                                                      4380
                                                                      4440
attaaqaqtc qaqaactcct cqctqttaaq qcqtcttqct qatqttaacc agaaqtacaa
tgatgctgct gttgacaata gagtgctaaa agcagatgtt gagaccttga gagcaaaggt
                                                                      4500
                                                                      4560
atgctatata tgccttttgc aatatgcatc ccatggattg ctactttggc ttgtttcaaa
                                                                      4620
ctttcaacgt gacttgtgta ccctgttatt agaagaataa tcccgcctac cattatactc
                                                                      4680
tataaatcac catttggcca gtccaaacat gattattaaa tcaggtcaat ctgaacattg
aaatgtatca aaaattcgca ggtgaagatg gcagaggact cggtgaagcg ggtgacaggc
                                                                      4740
atgaacgcgt tgtttcccgc cgcttctgat atgtcatccc tcagcatgcc attcaacagc
                                                                      4800
                                                                      4860
tececatety aageaaegte agaegetget gtteecatee aagatgaeee gaacaattae
ttcgctacta acaacgacat cggaggtaac aacaactaca tgcccgacat accttcttcg
                                                                      4920
                                                                      4980
gctcaggagg acgaggactt cgtcaatggc gctctggctg ccggcaagat tggccggcca
gcctcgctgc agcgggtggc gagcctggag catctccaga agaggatgtg cggtgggccg
                                                                      5040
gcttcgtctg ggtcgacgtc ctgagaccga aacccagagc tgcttcggtt ctgaaagaca
                                                                      5100
                                                                      5160
ctgcgagcag gaaatgatga ttggacaggc gtagacattg ctaatgctgt gaggttgatg
attgttggtc gtcgtcgtcg tcattgtgca ttctttgtaa gggacacctc ttagtaccct
                                                                      5220
                                                                      5280
cttcttctaa qqqacttaqt accccttqtq qatctcatcq tcctaaatac tatacacatt
agccaaatgt tcattggtgt gatggcgtcg tccctaattt gaacgactga tttcaggcag
                                                                      5340
ctgctatgct atcattcaat aatattttga tcgatgcttc ctcttgtctt ttgctcttaa
                                                                      5400
qcaaccaaqc ataaaqatat cactaccttt tgagctgttc atttgaagtg caaagctaag
                                                                      5460
ctcaatatct caggtgttca tttgaagttt aaaggtgaac tgataacaaa cgtcaggcta
                                                                      5520
                                                                      5580
tggtgaatga agggacgtgt acatecetaa tacatgteat titeataate aaattagtig
atgcattttc acccagaatc ccatcacagt tcatcataca agcaagtgta gttattaatg
                                                                      5640
gtaaattttt cgtttagaga aaaaaaaagg aagccttata taagattcac cggtggggtg
                                                                      5700
                                                                      5760
tgaacaataa tcaatgaatg agatcgcatc ccgtaagggc agcctagcta gacaaaaatg
cataaaactc cgtataccaa ccacaacaac gcttgcgcac gcgctcaaat ggcagcgact
                                                                      5820
                                                                      5880
tcatcqcttt cqcqqqcaaq aaacqaatca aqtgatacat tggcagggaa ccaccaaaag
aaqqccatcc aatccaatcc actccaacgc ggcatggaag acaagacaga tgattcacag
                                                                      5940
ctatcttctg cttctacaag tttgatactt tgtactgtcc tttcagggaa aaaagagcat
                                                                      6000
                                                                      6060
cagattagtc tgatctcggg cgcgttgagt tcttgtggga gatcttgttg tggagtggca
ggagtgacga tcggctgccc cgttttcttc taccgaaaca tcgccagtaa agaagccaaa
                                                                      6120
                                                                      6180
aagacaataa tacqqcaatq qqqatcqccc atctgcataa aacattgcat gacggaactg
                                                                      6227 -
attaatacaa qaatgacatg taagctgata attacgcgtg caagctt
```